DCI Central Intelligence

The Processing of Overtly Collected Scientific and Technical Intelligence Information (U)

Scientific and Technical Intelligence Committee

HUMINT Committee

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This report was approved by the Scientific and Technical Intelligence Committee on 23 June 1983.

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Preface

Scientific and technical analysts draw heavily on overtly collected information to produce finished intelligence. Trends in the past few years have tended to increase the importance of the overt collection of S&T intelligence, particularly in estimates of future activity where information from national technical means is not sufficient. The Intelligence Community, however, is not well organized for processing [1] the bulk of overt S&T information that is derived from open sources. This is in sharp contrast to the processing of PHOTINT, SIGINT, nuclear intelligence information, and in many cases, other overt S&T information reported in standard intelligence information reports formats.

In recognition of the need for improvement in overt S&T collection, the Scientific and Technical Intelligence Committee (STIC) published a white paper—The Collection of Overt S&T Intelligence—in 1979. The STIC noted that, although the potential for overt collection is high, this potential was not yet being realized, in part because of unexploited opportunities or underutilized collection capabilities, as well as a number of problems in the processing of S&T information subsequent to its collection. These problems are being exacerbated by the fact that the huge volume of overt information already available is growing rapidly. Some analysts believe that open source information has a relatively low intelligence content. To extract intelligence of value, great volumes of material must be surveyed. There is a tendency, therefore, to concentrate on sources of information of higher intelligence content, whose relevance to immediate problems is more evident, and whose exploitation requires less work.

The white paper pointed to a need to improve interaction among the collectors, processors, and users of overtly collected information, beginning with a careful look at the methods now being employed to process this information for use by the analyst and to assess the adequacy of these methods, as well as to explore novel or more efficient methods of processing the information.

To accomplish these objectives and as a logical follow-up to the STIC white paper on collection, the STIC and the HUMINT Committee in 1979 formed a working group to study the capabilities of the Intelligence Community, the rest of the US Government, and commercial organizations, both domestic and foreign, to process overtly collected information on foreign scientific and technological developments.

[1] For the purpose of this study "processing" is defined as a series of actions taken with information from the time it is collected until it first becomes available to the S&T intelligence analyst.

This report of the Working Group is the result of a comprehensive review of all phases of processing, analysts' usage, processing requirements, and future needs. To develop their findings and recommendations, Working Group members and contractor representatives investigated the current capabilities of the Intelligence Community and other S&T information processing systems and services, conducted two surveys of S&T intelligence analysts to determine analyst requirements for and problems with processing of overtly collected information, and identified needed improvements in current information processing.

Members of the Overt Intelligence Information Processing Working Group (hereafter referred to as the Working Group) and their affiliations are:

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(Chairman)	
Mr. Melvin J. Baker	Naval Intelligence Support Center
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Technical and analytical support to the Working Group was provided by Presearch Incorporated, Arlington, VA, under contract.

The Working Group acknowledges the cooperation and effort of hundreds of management and analyst personnel in the S&T intelligence organizations, without whose contributions this study would not have been possible. The Working Group particularly thanks those analysts who participated in the surveys and conscientiously completed the questionnaires providing previously unavailable data. No specific acknowledgment is made of individual contributions to this document because it represents the work of all participants listed above.

This information is Unclassified.

The Processing of Overtly Collected Scientific and Technical Intelligence Information

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Findings and Recommendations

Introduction

The Working Group sees three broad areas that need attention. Its findings and recommendations fall into three general categories:

1. Processing Coordination

Processing of overtly collected information within the Intelligence Community (IC) requires better direction and coordination to be more useful to analysts:

- Improvements are required to reduce the complexity, from the analyst point of view, of the processing system. Even if the analyst is very knowledgeable about the multiplicity of systems and sources, there are still too many to use efficiently and well. Time limitations impair the analyst's ability to use these systems effectively. The bulk of the Working Group's findings and recommendations, therefore, relate to improvements in the current processing systems.

2. Analyst Education

Analysts need additional training to be able to better use the processing resources available to them:

- The complexity of the collection and processing systems for overtly collected information presents a formidable obstacle to the S&T intelligence analyst's effective and efficient use of these systems. Even though information handling specialists exist to help, the analysts need to know how best to utilize their services. Many analysts are unaware of the multiplicity of the information processing services available to them. Moreover, analysts identified their own need for additional information on processing services as the primary requirement for better exploitation of overtly collected information. The establishment of training courses/sessions for new analysts, old analysts, and first-line supervisors is a key recommendation. At the same time, there is a need for periodic training and retraining of information specialists focusing on S&T data bases—both government and commercial—that are of current or potential value to IC analysts.

3. Preanalysis Improvement

Preanalysis is required to reduce the volume and increase the value of material reaching analysts:

- With few exceptions, none of the processing evaluated provides significant assistance to analysts in terms of organizing, collating, or sorting the information to aid analysts in selecting the most relevant information. A broad spectrum of possibilities exists, ranging from tasking an activity to perform

preanalysis to applying automated techniques to the processing itself. The analyst is faced with a great number of individual information items (journal articles, newspaper reports, patents, and so forth) to review, collate, excerpt, and assess. Virtually no automated "shoeboxes" are available to assist analysts. Requirements for information systems must go beyond storage and retrieval. (U)

The following additional, yet very important, observations should be kept in mind when reading the recommendations:

- The recommendations can be implemented without the establishment of any new processing entities. In any case, no new processing entities should be established without thorough review of the capability, capacity, and potential scope of existing processing entities.

- The study addressed only overtly collected S&T information. Many findings and recommendations are probably valid for "other than S&T" and "other than overtly collected" information, but extension to these other categories should not be made automatically.

- A disproportionately large number of recommendations appear to address improvements to the Defense Department's central information reference and control (CIRC) system. This system is the only IC operation that is primarily devoted to processing all categories of open source S&T information (about 85 percent of the data content is open source) and, moreover, provides more comprehensive processing than any other. Improving the CIRC system is far preferable to the alternatives of creating new systems or going outside the Community. (U)

General Recommendations

I. Increased Priority to Collection and Processing Overtly Collected Information
Finding. An insular emphasis on self-sufficiency on the part of many US Government entities involved in overt—particularly open source—collection and processing of S&T information constitutes the most fundamental impediment to efficiency. One of the key consequences of this situation is that collection and processing of overtly collected information tends to be diffused and fragmented. The same item of open source literature, for example, may be processed by several IC agencies. Although the processing in each instance may be tailored to the particular needs of parent agencies and may have unique features, there is usually no effort made to ascertain whether the needs of the different agencies involved are sufficiently divergent to warrant duplicative processing. Although individual processing organizations may want to minimize duplication, few mechanisms are available for accomplishing this. Moreover, the paucity of central data bases for all categories of overt S&T information accessible to all IC agencies, encourages a proliferation of overlapping data bases among the various IC agencies. Managers of overt S&T processing entities acting alone are unable to accomplish much because they are apt to have a vested interest in maintaining the status quo.

Moreover, their organizations are often regarded as support activities and are subordinate to intelligence production and nonovert collection activities, which deprives them of the clout needed to modify their procedures for the sake of improved Community processing and enhanced interagency collaboration even if they deemed this desirable. Past efforts to remedy flaws, such as the STIC Report on Collection of Overt S&T Information, which was strongly supported by the President's National Security Adviser, foundered on managerial inattention. 25X1

Recommendation. To remedy these problems, it is necessary to secure the direct involvement of senior IC management. Accordingly, the first recommendation of this report is that the recommendations contained herein be reviewed by the National Foreign Intelligence Council and that a steering group be established by the DCI to meet monthly to direct the effort to achieve meaningful action in this field. The steering group chairman should be a senior officer with a strong commitment to improving the processing of overt S&T information and to ensuring implementation of the recommendations of this report. This officer, supported by the DCI's HUMINT Committee, should have the additional function of raising the visibility of overt intelligence programs in the National Foreign Intelligence Program (NFIP). The fact that overt intelligence programs are highly fragmented and often involve relatively small sums make them virtually invisible within the NFIP, difficult to evaluate comprehensively, and places them below the threshold of senior management attention. The steering group chairman, supported by the DCI's HUMINT Committee, should review all NFIP submissions involving collection and processing of overtly collected intelligence to ensure that gaps are filled and unnecessary overlap is avoided and that the steering group as a whole or, if necessary, the National Foreign Intelligence Council addresses significant issues involving overt intelligence. (U)

II. Education of Analysts/Information Specialists

Finding. There is a universal requirement in the Intelligence Community for analyst training to enhance the effectiveness and efficiency of exploitation of available information resources. Analysts are generally unaware of the availability, contents, strengths, and weaknesses of sources of overtly collected S&T information. They correctly perceive a need for training to acquaint them with the full gamut of government and commercial sources of overtly collected S&T information available to them. At the same time there is a requirement for periodic training of information specialists who need to remain abreast of new and expanded S&T information services. This is particularly true of organizations where the same information specialists serve both S&T and non-S&T analysts so that it is more difficult to remain current on developments in S&T information processing. A permanent centrally administered program will be needed because of the tendency for organization-based training to focus narrowly on in-house information resources. A centralized program is less likely to be parochial in its approach and should ensure that analyst trainees are familiarized with all information resources likely to be of benefit to them. 25X1

Recommendation. The training program should be established centrally, by an organization with the perspective and awareness of the Community-wide need. The responsibility for the training is best satisfied by augmentation of the existing capabilities and charter of the CIA training structure currently addressing the specialized needs of the S&T intelligence analyst. The Information Science Center of the CIA Office of Training and Education, with the collaboration of training (particularly the Defense Intelligence College) and central reference organizations of other S&T information (S&TI) agencies, should prepare and present separate courses for analysts and for information specialists on the content and use of automated files—government and commercial, referral resources (National Referral Center), and information analysis centers. These courses should be available to all IC S&T analysts and information specialists, and the course material should be periodically updated. In designing such a program, the Information Science Center should take into account the findings of the Working Group, particularly data derived from the analyst and the information specialist surveys. In preparing these courses, the Information Science Center should produce and maintain a directory of S&T information resources detailing the input processing steps, contents, means of access, and strengths and weaknesses of the various government and commercial data bases available to analysts. This directory would be used in the courses and should be disseminated throughout the IC for use by analysts and information specialists as a ready desk reference. The information science and training entities of each S&TI organization should also prepare and present courses for all analysts detailing local information resources and services. 25X1

III. Colocate Information Specialists and S&T Analysts

Finding. In most IC organizations S&T analysts are required to go to a central reference facility to utilize the services of an information specialist who will assist them in retrospective search and retrieval of overtly collected S&T information. Generally, the information specialists involved have little or no S&T background, serve all organization analysts, and cannot develop expertise in exploiting information resources in some specific substantive area—Foreign Technology Division (FTD) is the notable exception. Thus, it is common that the same information specialist serves S&T, political, economic, and geographic analysts covering a broad diversity of countries and subjects. To ensure more comprehensive and discerning exploitation of the large number of S&T data bases that are available, there is a need for greater specialization among information specialists. 25X1

Recommendation. Each S&TI organization should establish a pilot program in which a technical information specialist is assigned to a specific division or branch. This specialist would be fully trained in the use of manual and automated data bases containing material relevant to the substantive areas that come under the purview of the division or branch and with experience would become closely attuned to the information needs of each analyst. Obviously, the division or branch information specialist would have to work closely with information specialists in the central reference facility, but the former's role would be pivotal in establishing search strategies, recommending use of information resources that are not locally available, and in translating analysts' information needs and priorities into terms that are comprehensible to information specialists at the central reference facility. If the pilot programs proved successful, permanent arrangements would be established on the basis of experience with the pilot programs. 25X1

IV. Depth of Processing

Finding. A wide range of processing is applied to overtly collected information. At one extreme, some information receives almost no processing at all, limiting its use in S&T analysis. At the other extreme, there is considerable depth of processing. Although differences in processing different types of information are inevitable, conscious decisions to apply different levels of processing based on analyst needs do not appear to have been made within the context of a consistent system of priorities. Broad emphasis has been placed on information judged to have high intelligence content. Thus, intelligence information reports receive extensive (often duplicative) processing in almost every agency. Many types of information—particularly information based on open sources—receive limited processing. For example, while JPRS reports are highly acclaimed for their treatment of some open literature, indexing is poor to nonexistent, greatly hampering retrospective search and retrieval. There should be improved retrospective search and retrieval of JPRS reports over that currently provided by Bell and Howell's TRANSDEX. There is a need for automated retrieval by keyword to include retrieval of FOR OFFICIAL USE ONLY reports that are not currently covered in TRANSDEX. Contractor reports prepared in support of analysis (and which often depend heavily on open source information) should be systematically processed to ensure general availability and to avoid unnecessary duplication. [redacted] 25X1

Recommendation. Overtly collected information not currently processed systematically should be subjected to systematic processing to ensure its more general and continued availability to IC analysts. [redacted] 25X1

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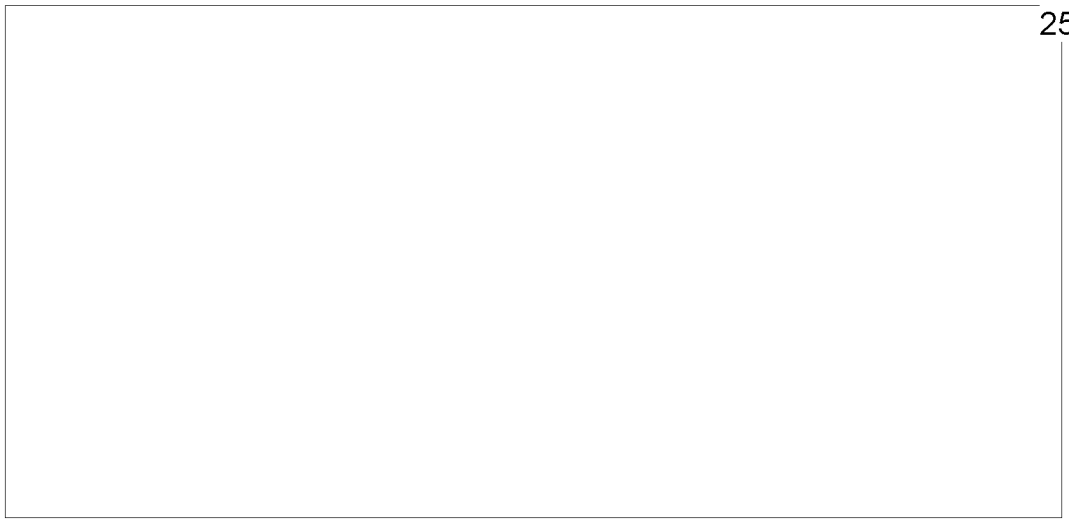

V. CIRC Scope Expansion

Finding. The DOD S&T intelligence information processing system, CIRC, is among the most widely available and widely used IC systems for overtly collected S&T information. CIRC utility suffers, however, because, in large measure, it is a USSR and East European related data base. This stems from the fact the system is responsive solely to DOD S&T requirements and the existence of resource constraints. Some users also judge CIRC's value to be circumscribed (from the processing viewpoint) by limitations on the technical depth of subject treatment. Accessibility of CIRC varies among IC organizations. Consequently, analysts in some organizations who would potentially benefit from CIRC data may be deterred from making maximum use of it by difficulty of access.

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Recommendation. The CIRC data base should be expanded to ensure IC requirements—both DOD and non-DOD—are adequately addressed. The current limitation of CIRC to S&T information of interest to DOD should be dropped with CIRC expanded to cover all IC S&T requirements.

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XI. Preanalysis Support

Finding. Preanalysis support to S&T analysis is woefully inadequate. The information available extensively in automated systems must usually be reviewed by analysts in hard copy. Further manipulation of that information usually requires additional data entry support, which is largely unavailable.

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Recommendation. Concerted action is needed to provide more effective manipulation of overtly collected information as well as commercially processed information either during its processing or subsequent to it in order to relieve analysts of the task so they can devote more of their time to analysis.

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Central Intelligence

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Annexes A Through D

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April 1984

Preface

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The Working Group's findings are presented in two publications. This volume is a companion document to the assessment "The Processing of Overtly Collected Scientific and Technical Intelligence Information", STIC 83-004, published in 1983. The 1983 publication contains the findings and recommendations of the Working Group, and this publication contains additional material in support of the findings and recommendations, the terms of reference for the study, and a glossary.

Members of the Overt Intelligence Information Processing Working Group (hereafter referred to as the Working Group) and their affiliations are:

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